

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK

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SHAUNA NOEL and EMMANUELLA SENAT,

Plaintiffs,

-against-

15-CV-5236 (LTS) (KHP)

CITY OF NEW YORK,

Defendant.  
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EXPERT REPORT OF PROFESSOR ANDREW A. BEVERIDGE

April 1, 2019

**A. Qualifications, experience, compensation**

1. I am a Professor of Sociology at Queens College and the Graduate Center of the City University of New York, and served as Chair of the Queens College Sociology Department from 2006 to 2018. My primary responsibilities at Queens College and the Graduate Center are teaching statistics and research methods at the graduate and undergraduate levels, and conducting quantitative, statistically-based social research. I have a Ph.D. in Sociology and B.A. in Economics from Yale University. I have been a professor since 1973, first at Columbia University until 1981, and then at Queens College and the Graduate Center of the City University of New York.

2. My areas of expertise include demography and the statistical and quantitative analysis of social science datasets, most particularly including Census data, survey data and administrative records. I am an expert in the application of Geographical Information Systems (GIS) technology to the analysis of social patterns. I regularly publish results and analyses in professional journals and peer-reviewed books. Some of my analyses have served as the bases for articles in the *New York Times*, where I have served as a demographic consultant since 1993, through an agreement between Social Explorer, Inc. and the *New York Times*.

3. I am the co-founder and CEO of Social Explorer Inc., a website that provides demographic and other social data in a visual form. The site and related projects have won six awards and had over one million users in the last year. The site is distributed to libraries by Oxford University Press and is licensed to Pearson Publishing across all of higher education for the development of curricular materials. I have also served as a consultant to a number of public and private entities, where I provide services related to demographic analysis.

4. I have frequently provided expert opinions and testimony in demographic and

statistical analysis. These include the following (and encompass all of the cases in the last four years where I have given testimony at trial or at deposition): *Adriann Borum, et al., v. Brentwood Village, LLC, et al.*, No. 1:16-Cv-01723-Rc (D.C.); *Residential Opportunities, Inc. v. Clinton Terrace L.P.*, No. 7:16-cv-9273; (S.D.N.Y.) (Report, 2017); *Akagi v. Turin Housing Development Fund, Co.*, No. 1:13-cv-5258 (S.D.N.Y.) (Report, Deposition, Rebuttal Report, 2016–present); *Aref v. Sessions*, No. 1:10-cv-539 (D.D.C.) (Report, Deposition, 2013–present); *New York v. Evans Bancorp, Inc.*, No. 1:14-cv-726 (W.D.N.Y.) (Report, 2014–2015); *United States v. City of New Orleans*, No. 2:12-cv-1924 (E.D. La.) (Report, Deposition, 2013–2014); *City of Joliet v. Mid-City Nat’l Bank of Chicago*, No. 1:05-cv-6746 (N.D. Ill.) (Report, Deposition, Trial Testimony, 2012–2013); *United States v. St. Bernard Parish*, No. 2:12-cv-321 (E.D. La.) (Report, 2013–2014); *Favors v. Cuomo*, No. 1:11-cv-5632 (E.D.N.Y.) (Hearing Testimony, 2012); *Rivera v. Incorporated Village of Farmingdale*, No. 2:06-cv-2613 (E.D.N.Y.) (Report, Deposition, 2009–2014); *Aguilar v. Immigration and Customs Enforcement Div. of the U.S. Dept. of Homeland Security*, No. 1:07-cv-8224 (S.D.N.Y.) (Report, Rebuttal Report, Deposition, 2010–2013). A virtually complete list of cases and other matters in which I have provided opinions, as well as a list of publications, are listed in my curriculum vitae, attached hereto as Exhibit 1.

5. I am being compensated at the rate of <sup>[Redacted]</sup> hour for my work in this case; I am also being reimbursed for expenses, including the expenses for payment of members of my team.

#### **B. Prior report**

6. I previously submitted a declaration in this matter, dated June 1, 2017. The findings and opinions expressed in that declaration remain pertinent to the issues in this case. That declaration and the exhibits thereto is submitted separately as a supplement to this report.

### C. Introduction and summary of findings

7. Defendant has had and continues to have rules (adopted and enforced by HPD, the Department of Housing Preservation and Development, and by HDC, the New York City Housing Development Corporation (“the agencies”)) that govern the award of housing units in defendant-administered lotteries for development or preservation projects where some or all of the units are within various levels of what defendant considers “affordable.” The eligibility criteria for some units makes them affordable, for example, to households (“HHs”) with an annual household income up to 60 or 80 percent of Area Median Income (“AMI”). Other units are “affordable” at a different level: perhaps 130 or even 165 percent of AMI.

8. The case and this report have to do with that portion of affordable housing units that are distributed by what is referred to as a housing lottery for initial rent-up. It is not concerned with units that are awarded through means other than the lottery (for example, units that are awarded by agency referral or with units that have been awarded as open market, the latter being a process that is supposed to be activated, on agency approval, only when one or more unit types have not been able to be filled in the lottery). It also puts to the side applicant HHs who, at application, are not New York City residents, and the small number of units awarded through the lottery to non- New York City residents.<sup>1</sup>

9. The units in a project anticipated to be “lotteried” off are advertised to the public, including on “Housing Connect,” defendant’s online portal for advertising lotteries and accepting applications for them. (“Housing Connect” also refers to the database in which information

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<sup>1</sup> In standard lotteries, New York City applicant HHs have a general preference over non- New York City applicant HHs. Unless otherwise specified, references to “all HHs,” “all units” or to “all” of a certain type or category of HH or unit are to be understood as terms that do *not* encompass non- New York City applicant HHs, nor units awarded to non- New York City residents. Residents of places outside of New York City accounted fo [Redacted]



provided by applicant HHs in their applications is stored.)

10. Within a project's lottery, there are, in the overwhelming percentage of lotteries, multiple "unit types" that are, at least initially, available to be competed for. Each unit type in a lottery is characterized by a unique combination of number of bedrooms, a monthly rent, a minimum income, and a range of permissible HH sizes, with the maximum permissible HH income generally varying by each permissible HH size. Each unit type is also associated with a particular AMI level of household income.

11. As I understand it, there is no "pre-qualification" or "qualification" process at the entrant stage. An applicant HH who wishes to do so is permitted to do so, so long as required information is provided.<sup>2</sup>

12. Neither HPD nor HDC make any initial threshold judgment about the qualifications of an applicant HH.<sup>3</sup> In some respects, the process at this point is unremarkable: those who have wanted to apply have applied; once the lottery application process has ended, the agencies assign random sequence numbers to each application to determine the order in which a developer's marketing agent is obliged to review them; and several pieces of data about applicant HHs, including, notably, the applicant HH's self-reported annual HH income and HH-size, are made available to the marketing agent.

13. [Redacted]

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<sup>2</sup>

[Redacted]

<sup>3</sup>

[Redacted]

[Redacted]

14. [Redacted] are a number of set-aside and preference rules, including rules that provide for priority being given for up to 50 percent of units anticipated to be lotteried<sup>4</sup> off to those applicant HHs who live in the community district where the development is located.<sup>5</sup>

15. I was asked for this report to examine data from defendant's affordable housing lotteries to determine whether the community preference policy operates to create discriminatory effects against one or more racial or ethnic groups. I was also asked to determine whether these effects are reflective of a pattern that perpetuates segregation more (and allows integration less) than what would exist without the policy. I was also asked to opine on the extent to which applicant households choose to limit or do not choose to limit themselves to lotteries for affordable housing opportunities within their own community district. Finally, I was asked to opine on the scope of residential segregation in New York City.

16. For the purposes of this report and its exhibits, where I use the term African-American or Black, I am referring to the Census group "non-Hispanic Black"; when I use the term White, I am referring to the Census group "non-Hispanic White"; when I use the term Asian, I am referring to the Census group "non-Hispanic Asian"; and when I use the term Latino or Hispanic, I am referring to the Census group "Hispanics of any race."

17. The updated universe of projects that I analyzed consists of 168 of the 185 rental lotteries where defendant had "reconciled" the results between and among multiple types of

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<sup>4</sup> There are some circumstances where the percentage of lotteried units that go to applicant HHs living in the community district can be larger or smaller than 50 percent, but 50 percent is the norm.

<sup>5</sup> In a small percentage of cases, the preference is expanded to cover not only those who live in the community district where the project is located, but also those who live in one or more nearby community districts.

defendant's data.<sup>6</sup> These projects are listed by their Housing Connect ("HC") Project Identification Number in Exhibit 2. Lotteries from among this group had application deadlines for applicant households as early as August 2012 and as late as February 2017; full "lease-up" (that is, the moment at which the award of all of a project's lottery units for initial occupancy was completed) occurred between October 2012 and July 31, 2018.

18. In the aggregate, the 168 rental lotteries accounted for awards of [Redacted] affordable housing units through the lottery ("lotteried units").<sup>7</sup>

19. There were, in total, more than [Redacted] lottery applications for these units from more than [Redacted] unique applicant HHs.

20. The reconciled rental lotteries that I did not analyze come in two categories: (a) 100 percent community preference lotteries; and (b) 15 projects, where only one unit or two units were lotteried off (these 15 lotteries awarded [Redacted] units in the aggregate). All of these projects are also identified in Exhibit 2. Each project in the 15-lottery group had been advertised as having community preference applicable, [Redacted]

21. My analyses included identification of lotteries, units types, unit types awarded, and applicant HHs within seven community district preference area typologies ("CD typologies")

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<sup>6</sup> In brief, the purpose of reconciliation was to confirm the accuracy of defendant's records as to which applicant HHs were awarded lotteried units.

[Redacted]  
Decisions as to how to reconcile and what the reconciliation results should be in each particular case were made by defendant. Further reference to the reconciliation process is made in Section XIII of the Sources and Methodology Appendix submitted herewith.

<sup>7</sup> As a reminder, I note that references to units and to applicant HHs (for example, in paragraphs 18 and 19) are always excluding non- New York City applicant HHs and units awarded to non- New York City HHs. Note, also, that defendant did not provide equivalent HH information on those who received units *outside* of the lottery process.



that I based on 2013-17 5-year American Community Survey (“ACS”) population data:<sup>8</sup> majority White, majority Black, majority Asian, majority Hispanic, plurality White, plurality Black, and plurality Hispanic.

22. A list of the HC Projects, the number of units awarded through the lottery for each such project, the project’s CD typology, and the demographic composition of the project’s CD preference area, is reported in Exhibit 3. Racial and Hispanic composition for the lotteries in each CD typology, along with the number of lotteries in each typology, is reported in Exhibit 4.<sup>9</sup>

23. [Redacted]

24. [Redacted]

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<sup>8</sup> 2013-17 ACS 5-year data comprises the most recent 5-year data available (data from 2013 to 2017). I was able to aggregate up from the Census block level to the community district level using a map that provided information on the location of every Census block in a community district (CD). The map is available online from the “Bytes of the Big Apple” database from the New York City Department of City Planning at <https://www1.nyc.gov/site/planning/data-maps/open-data/districts-download-metadata.page>. A few blocks (those in parks and other areas with little or no population) were not assigned to a community district. The information from the ACS data was disaggregated to the block level based upon the percent of the block group population in each block, and then aggregated up to the CD. This is simply population weighting of block groups to blocks, and makes it possible to have reasonable estimates of population.

<sup>9</sup> To make it possible to have reliable estimate of the composition of each typology based upon the number of units awarded, each CD or CD preference area that had one or more awardees was weighted based upon the total number of awardees in that CD or CD preference area. Thus, the composition of each typology best reflects that experienced by the awardees.



[Redacted]

25. [Redacted]

26. [Redacted]

27. [Redacted]

<sup>10</sup> [Redacted]

<sup>11</sup>).

28. [Redacted]

(Apparently-eligible HHs are applicant HHs whose HH size and income, as self-reported and stored in the HC database, met the income- and HH-size requirements for at least one unit-type in a lottery, as those requirements are set forth in various of defendant's data.)<sup>12</sup>

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<sup>10</sup> Applicant HHs who are "insiders" (that is, who reside in the CD preference area). There is a small subset of such insiders who, for the purpose of the analyses I have performed, are treated as non-beneficiaries. See discussion at 11-12, ¶¶ 37-40.

<sup>11</sup> Applicant HHs for a lottery who reside in New York City outside of the community district preference area ("outsiders") and a small subset of insiders who, for the purposes of the analyses I have performed, are treated as non-beneficiaries. See discussion at 11-12, ¶¶ 37-40.

<sup>12</sup> My testing for apparently eligible HHs included that portion of applicant HHs self-reporting the availability of a housing subsidy who: (a) are not disqualified based on reporting more income than the

29. [Redacted]

30. [Redacted]

31. [Redacted]

32. [Redacted] hypothesis that New Yorkers are always or mostly interested in remaining in their existing community district [Redacted]

33. And, finally, as has long been the case, New York City continues to have high levels of segregation, most especially between Black and White New Yorkers.

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maximum income permitted for the unit type or types for which they are HH-size eligible; or (b) are not already eligible based on their HH income compared with the relevant unit types' requirements for minimum and maximum income. I made the determination of apparent eligibility for those applicant HHs who have reported the availability of a subsidy and who: (a) have HH income lower than the minimum income for the relevant unit types; and (b) by the operation of subsidy rules, are nonetheless deemed to be able to afford one or more of the relevant unit types (unit types which permit the applicant HH's HH-size).

**D. Sources and methodology**

34. With scant exception, the data I used were defendant's data provided to plaintiffs in discovery.<sup>13</sup> [Redacted]

14

[Redacted]

35. Additional information about sources and methodology is contained in the body of this report and in the Sources and Methodology Appendix submitted herewith.

**E.** [Redacted]

36. It is at the lottery entrance stage that the agencies identify applicant HHs as living in the CD preference area or not, and, accordingly, make available to developers an initial log of

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<sup>13</sup> And as to the few exceptions, the data are publicly available to defendant, as noted where applicable.

<sup>14</sup> The Housing Connect data were supplied to plaintiffs' counsel [Redacted]  
The database was an exact copy except that some fields were redacted due to a variety of defendant concerns.

lottery applicants subject to lottery sequencing rules (most pertinently, applicant HHs living in the CD preference area are to be processed before any applicant HH resident in New York City who lives outside of the CD preference area<sup>15</sup> until the 50 percent CD preference has been filled).

37. I first explored the extent to which the odds of being awarded a unit differed as between those applicant HHs who could compete for units that were ultimately awarded on the basis of the HH residing in the community district (CP beneficiary units) versus those applicant HHs who could compete for units that were ultimately awarded independent of community district residence (non-beneficiary units).

38. [Redacted]

39. [Redacted] <sup>16</sup> [Redacted]

17

[Redacted]

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<sup>15</sup> And who does not list a HH member with a mobility disability or hearing or visual disability.

<sup>16</sup> Except where otherwise specified, reference to “status sheets” means the status sheet as reconciled by the reconciliation process, and encompasses the Access database’s equivalent information.

<sup>17</sup> A marketing agent, as alluded to earlier, is a representative of, and works for, the project’s developer. Applicant HHs only come to the attention of the agencies if: (a) the marketing agent submits them for the agency to approve an award of a unit; (b) the applicant HH is appealing a determination that had been made at the developer level; or (c) the applicant HH files a complaint.



[Redacted]

40. [Redacted]

41. [Redacted]

<sup>18</sup> [Redacted]

<sup>19</sup> [Redacted]

42. [Redacted]

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<sup>18</sup> [Redacted]

<sup>19</sup> [Redacted]

[Redacted]

43. [Redacted]

44. [Redacted]

45. [Redacted]

46. [Redacted]

,<sup>20</sup> [Redacted]

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<sup>20</sup> The counts of applicant HHs by typology and CP beneficiary or non-beneficiary status are found in Exhibit 5 hereto. The analogous counts for awarded units are found in Exhibit 7 hereto. Chances were derived by comparing all CP beneficiary entrants with all CP beneficiary units that were awarded, and by comparing all non-beneficiary entrants with all non-beneficiary units that were awarded.

<b>Table 1 – Chances per 1,000 entrants of an award of a lottery unit, by CD typology</b>			
CD typology	Non-beneficiary entrant chances	CP beneficiary entrant chances	[Redacted]
Majority White	[Redacted]		
Majority Black			
Majority Hispanic			
Majority Asian			
Plurality White			
Plurality Black			
Plurality Hispanic			

47.

[Redacted]

48. [Redacted] to what extent, within each CD typology, are one or more groups taking advantage of CP beneficiary status more than others?

49. I examined this question in two ways, each looking at the distribution of applicant HHs as related to non-beneficiary applicant HHs versus CP beneficiary HHs. The first method was to examine separately the total number of applicant HHs from each of the four racial or ethnic groups being analyzed in this report (both CP beneficiary and non-beneficiary) and to see in each

case what percentage of that total was represented by the CP beneficiary applicant HHs. [Redacted]

<b>Table 2 – Comparing each group’s CP beneficiary applications as a percentage of that group’s total applications against the highest such percentage for any group, by CD typology</b>					
CD typology	Group with highest percentage of its awardees being CP beneficiary awardees	Relative percentage by which highest group exceeds other groups			
		White	Black	Hispanic	Asian
Majority White	[Redacted]				
Majority Black					
Majority Hispanic					
Majority Asian					
Plurality White					
Plurality Black					
Plurality Hispanic					

50.

[Redacted]



[Redacted]

51. [Redacted]

52. My second method [Redacted] was to examine the demographic distribution of non-beneficiary applicants versus CP beneficiary applicants. The question was the extent to which a group was represented:

a. at a higher level among CP beneficiary applicants [Redacted]  
than among non-beneficiary applicants [Redacted]

or

b. at a lower level among CP beneficiary applicants than among non-beneficiary applicants [Redacted]

53. [Redacted]

54. In all cases, I compared the group's share of the non-beneficiary entrants with that group's share of CP beneficiary entrants. An increase [Redacted] is represented by a positive number; a decrease [Redacted] is represented by a negative number.

55. [Redacted]

Table 3 – Comparing relative percentage change for each group from share of non-beneficiary entrants to share of CP beneficiary entrants, by CD typology				
CD typology	White	Black	Hispanic	Asian
Majority White	[Redacted]			
Majority Black				
Majority Hispanic				
Majority Asian				
Plurality White				
Plurality Black				
Plurality Hispanic				

56. [Redacted]

57. [Redacted]

58. [Redacted]

59. [Redacted]

F. [Redacted]

60. [Redacted]

[Redacted]

.<sup>21</sup>

61. I wanted to examine whether [Redacted]

the subset who are apparently eligible.

62. These are HHs who, by the information provided by the applicant HH, would appear to be eligible for one or more unit-types in a lottery they had entered.<sup>22</sup> [Redacted]

.<sup>23</sup>

[Redacted]

63. [Redacted]

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<sup>21</sup>

[Redacted]

<sup>22</sup> Applicant HHs do not apply for particular unit types; they apply generally to a lottery.

<sup>23</sup> [Redacted]



[Redacted]

64.

[Redacted]

24

65.

[Redacted]

66. These procedures allowed me to have a universe of apparently eligible HHs.<sup>25</sup> Proceeding as I had with my entrant analysis, I was able to create a sub-universe of apparently-eligible CP beneficiary applicant HHs and a sub-universe of apparently-eligible non-beneficiary applicant HHs.

67.

[Redacted]

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<sup>24</sup> See further discussion in Sections VI to XI in the Sources and Methodology Appendix.

<sup>25</sup> The counts of apparently-eligible applicant HHs by typology and CP beneficiary or non-beneficiary status are found in Exhibit 6 hereto.

Table 4 – Chances per 1,000 apparently eligible HHs of an award of a lottery unit, by CD typology			
CD typology	Non-beneficiary apparently eligible HH chances	CP beneficiary apparently eligible HH chances	[Redacted]
Majority White	[Redacted]		
Majority Black			
Majority Hispanic			
Majority Asian			
Plurality White			
Plurality Black			
Plurality Hispanic			

68.

[Redacted]

26

69.

[Redacted]

26

[Redacted]

Table 5 – Comparing each group’s CP beneficiary apparently eligible HHs as a percentage of that group’s total apparently eligible HHs against the highest such percentage for any group, by CD typology					
CD typology	Group with highest percentage of its apparently eligible HHs being CP beneficiary apparently eligible HHs	Relative percentage by which highest group exceeds other groups			
		White	Black	Hispanic	Asian
Majority White	[Redacted]				
Majority Black					
Majority Hispanic					
Majority Asian					
Plurality White					
Plurality Black					
Plurality Hispanic					

70. [Redacted]

.<sup>27</sup> [Redacted]

71. [Redacted]

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<sup>27</sup> [Redacted]

[Redacted]

72. There is, of course, a second test (as there was for entrants), this one looking at the relative difference between a group's share of all non-beneficiary apparently-eligible HHs and that group's share of all CP beneficiary apparently-eligible HHs.

73.

[Redacted]

Table 6 – Comparing relative percentage change for each group from share of non-beneficiary apparently eligible HHs to share of CP beneficiary apparently eligible HHs, by CD typology				
CD typology	White	Black	Hispanic	Asian
Majority White	[Redacted]			
Majority Black				
Majority Hispanic				
Majority Asian				
Plurality White				
Plurality Black				
Plurality Hispanic				

74.

[Redacted]

28

[Redacted]

75. [Redacted]

76. [Redacted]

G. [Redacted]

77. [Redacted]

Table 7 – Comparing each group’s CP beneficiary awardees as a percentage of that group’s total awardees against the highest such percentage for any group, by CD typology					
CD typology	Group with highest percentage of its awardees being CP beneficiary awardees	Relative percentage by which highest group exceeds other groups			
		White	Black	Hispanic	Asian
Majority White	[Redacted]				
Majority Black					
Majority Hispanic					
Majority Asian					
Plurality White					
Plurality Black					
Plurality Hispanic					



78.

[Redacted]

.29

[Redacted]

79.

[Redacted]

80. The second test at the awardee stage, as with the other stages, is relative percentage change for each group from its share of non-beneficiary awardees to its share of CP beneficiary awardees.

[Redacted]

<b>Table 8 – Comparing relative percentage change for each group from share of non-beneficiary awardees to share of CP beneficiary awardees, by CD typology</b>				
CD typology	White	Black	Hispanic	Asian
Majority White	[Redacted]			
Majority Black				
Majority Hispanic				
Majority Asian				
Plurality White				
Plurality Black				
Plurality Hispanic				

29

[Redacted]

81. [Redacted]

82. [Redacted]

83. [Redacted]

84. [Redacted]

85. [Redacted]

**H. Additional observations**[Redacted]

86. [Redacted]

[Redacted]

87. [Redacted]

30

[Redacted]

88. [Redacted]

89. [Redacted]

[Redacted]

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30

[Redacted]

[Redacted]

90. This subset of unit types, the projects they were associated with, their AMI bands, and the number of lottery units awarded to CP awards of than disability in each unit type are listed in Exhibit 8, hereto.

91. [Redacted]

92. [Redacted]

93. [Redacted]

**I. Participation in lotteries outside of an applicant HH's community district or borough**

94. In my declaration of June 1, 2017 (the supplement to this report that I am submitted together with this document), I found that [Redacted]

[Redacted]

.31

95. That analysis was based on a larger number of lotteries of which the 168 lotteries being analyzed elsewhere in this report formed a substantial part. I continue to believe those findings to be true.

#### J. Segregation in New York City and its perpetuation

96. Residential segregation has been measured for decades. New York City has long been highly segregated with respect to Blacks and Hispanics ever since they came to live in the City in relatively large numbers. The table below shows two of the most common segregation indexes with the results for the City from 1980 through the present. I computed all of these indexes; those through 2010 were published in a book that I co-authored and co-edited.<sup>32</sup>

<b>Table 9 - Segregation Indexes for New York City 1980 through 2013-2017 ACS</b>					
	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2010</b>	<b>2013-17 ACS</b>
<b>Dissimilarity NHBlack/NHWhite</b>	0.83	0.84	0.84	0.82	0.86
<b>Dissimilarity NHWhite/Hispanic</b>	0.64	0.66	0.67	0.66	0.69
<b>Dissimilarity NHAsian/NHWhite</b>	0.49	0.48	0.50	0.52	0.57
<b>Isolation NHWhite/NHBlack</b>	0.82	0.84	0.85	0.84	0.84
<b>Isolation NHWhite/Asian</b>	0.25	0.34	0.44	0.52	0.56
<b>Isolation NHWhite/Hispanic</b>	0.62	0.69	0.73	0.73	0.72

<sup>31</sup> See Section E of that declaration, and the accompanying Exhibit 9.

<sup>32</sup> The indexes for 1980 through 2010 are taken from Andrew A. Beveridge, David Halle, Edward Telles, and Beth Leavenworth Dufault, "Residential Diversity and Division" in *New York and Los Angeles: The Uncertain Future*, David Halle and Andrew A. Beveridge (eds.) (New York: Oxford University Press, 2013, p 316). The most recent set of indexes uses the same program as the earlier indexes, based upon more recent data from the 2013-17 ACS. All these indexes are based upon the Census tract data.



97. These indexes get at two different dimensions of segregation. The dissimilarity index measures how evenly a population is spread out in a given area. If the population is evenly distributed, then the measure is zero; if completely segregated, the measure is one. The measure gives the proportion of the population that would need to be moved to get to perfect evenness. For New York City, the measure has risen from .82 to .86 for Blacks and Whites since 2010. These figures have shown very little variation since 1980. An increase is also seen for Hispanics and Asians as compared with whites from Census 2010 to ACS 2013-17.

98. The isolation measures express the average percent of other groups that one would find in a specified region (here census tracts). The isolation measure for Blacks and Hispanics is high, and that for Asians seems to be rising. For all these measures, the contrast category is Whites.

99. New York City's level of segregation by these measures was and remains high. Particularly notable is the fact the City has apparently made little or no progress in reducing segregation levels over time, especially as compared with the results of most other large cities.

100. New York City's levels of segregation translate quite directly into the highly-concentrated nature of many of the community districts in New York City. Four maps of the distribution of the population groups assessed in this report, overlaid with community district boundaries, are attached hereto as Exhibits 9-12. As is apparent from the maps and from the CD typologies, many of the community districts vary considerably in the extent to which each of the major groups is present. For example, Whites tend to be most concentrated in some areas of Manhattan, Brooklyn, and Staten Island. When compared with the map of the Black population, it is clear how separate the two populations are. The Hispanic population is concentrated in the Bronx and in some parts of Manhattan and Queens. And the Asian population is growing and becoming most concentrated in Queens.

[Redacted]

[Redacted]

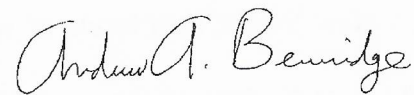
101.

[Redacted]

**K. Conclusion**

102.

[Redacted]

A handwritten signature in cursive script, reading "Andrew A. Beveridge". The signature is written in dark ink and is positioned above a horizontal line.

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Andrew A. Beveridge